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ANALYSIS OF THE AIR FORCE RETAIL ASSET BALANCE REPORTING PROCESS

AFLMA Final Report (LS200117001)

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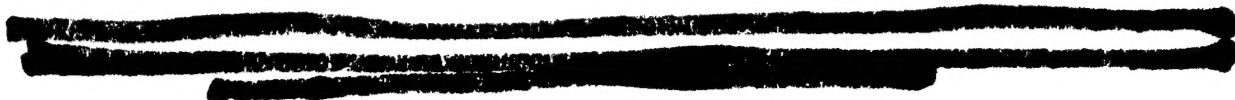
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14. ABSTRACT The Standard Base Supply System reports asset inventory balances to AFMC using two methods, a daily report and a quarterly report. The daily report (7LF/9Q(x)) is provided each day an item's asset balance changes. It provides new reports and overwrites previously reported daily balances. The quarterly report (7WS) is generated at the end of each quarter and is a snapshot of SBSS asset balances for all Air Force-managed items. When total asset balances from both reporting methods are compared they yield different results. The objective of this analysis was to determine why there are differences in asset balances reported via the two methods. Provide recommended changes to daily Recoverable Assembly Management Process (RAMP) reporting process and/or to the 7WS transaction to provide AFMC accurate asset balances to use for worldwide requirements computation of AF-managed items. There are four reasons why asset balances reported via the daily RAMP process would differ from asset balances reported on the quarterly 7WS transaction. First, the RAMP program (D-28) that generates daily and quarterly asset balance reports uses <i>different program logic</i> to accumulate reportable quantities. Second, the <i>daily RAMP reports are not created for all AF-managed items</i> . Third, the 7WS reports positive balances for <i>L or P serialized NSNs and equipment items</i> . And fourth, <i>not all daily RAMP transmissions successfully get to D035A</i> . Our recommendations include correcting program errors and designing a program to generate end-of-quarter daily RAMP transactions. When both actions are complete, we recommend AFMC use balances reported via daily RAMP transactions for worldwide requirements computations and daily repair and distribution decisions.					
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Executive Summary

Problem Statement

Which Standard Base Supply System (SBSS) asset inventory balance reporting method should be used to feed Air Force Materiel Command's (AFMC) Secondary Item Requirements System (SIRS or D200A) to determine buy and repair requirements for Air Force-managed (AF) items? The SBSS reports asset inventory balances to AFMC using two methods, a daily report and a quarterly report. The daily report (7LF/9Q(x)) is provided each day an item's asset balance changes. It provides new reports and overwrites previously reported daily balances. The quarterly report (7WS) is generated at the end of each quarter and is a snapshot of SBSS asset balances for all Air Force-managed items. When total asset balances from both reporting methods are compared they yield different results.

Objectives

Determine why there are differences in asset balances reported via the two methods. Provide recommended changes to the daily Recoverable Assembly Management Process (RAMP) reporting process and/or to the 7WS transaction to provide AFMC accurate asset balances to use for worldwide requirements computation of AF-managed items.

Analysis Results

There are four reasons why asset balances reported via the daily RAMP process would differ from asset balances reported on the quarterly 7WS transaction. First, the RAMP program (D-28) that generates daily and quarterly asset balance reports uses *different program logic* to accumulate reportable quantities. Second, the *daily RAMP reports are not created for all AF-managed items*. Third, the 7WS *reports* positive balances for *L or P serialized NSNs* and *equipment items*. And fourth, *not all daily RAMP transmissions successfully get to D035A*.

AFMC can obtain an accurate record of serviceable and unserviceable AF-managed assets by using a combination of both asset balance reporting methods. Therefore, we recommend AFMC continue to use balances (except balances in the due-out-to-maintenance field (DOTM)) reported via 7WS for worldwide requirements computation until 7LF/9Q(x) transmission errors are corrected. AFMC should continue to use the 9QK DOTM balance; and, when no 7WS is received, use other balances reported on the latest 7LF/9Q(x).

However, there should be one accurate and consistent source of data for AFMC requirements, repair, and distribution decisions. The AF should not budget, compute

requirements, and perform repair capacity planning with data that is not consistent with the data used to *execute* repair, buy, and distribution decisions.

Therefore, in the near future (6 months) we recommend AFMC begin using asset balances reported by 7LF/9Q(x) for performing requirements computations for AF-managed items. There are two problems with using the 7LF/9Q(x) right now. First, there are DIREPs (logic errors) that Headquarters Standard Systems Group (SSG) must correct. Secondly, RAMP suffers from data transmission/receipt errors. Before AFMC uses 7LF/9Q(x) exclusively, SSG must correct all outstanding DIREPs and develop a SURGE program for all bases to generate an end-of-quarter 7LF/9Q(x) report on AF-managed NSNs. Generating end-of-quarter 7LF/9Q(x) reports to AFMC will provide a means for AFMC to ensure the most current asset balances are used for requirements computation. Using the 7LF/9Q(x) reported balances will allow day-to-day repair and distribution decisions to be based on the same data used to compute requirements computations.

Conclusions

1. Program logic that produces 7WS and 7LF/9Q(x) images is not consistent when categorizing and reporting SBSS asset balances.
 - a) DOTM balances are not reported in the 7WS.
 - b) 7WS program logic excludes certain firm due-in from maintenance (DIFM) balances from the DIFM quantity reported. These excluded DIFM balances are reported as either serviceable assets or war reserve materiel (WRM) assets. Whereas, the 7LF program logic reports all firm DIFM balances in the DIFM balance field. This does not present a problem unless specific balances reported via the two methods are compared.
 - c) 7LF logic does not report DIFM, unserviceable, suspended-in-stock, or special purpose recoverable asset management (SPRAM) balances for XB3 items.
2. Daily reports (7LF/9Q(x)) are not produced for all AF-managed items.
3. Daily RAMP (7LF/9Q(x)) transactions suffer from data transmission/receipt problems.

Recommendations

1. For now, continue to use balances (except due-out balance) reported via 7WS for worldwide requirements computation and use the DOTM balance from 9QK images. When a quarterly report (7WS) is not received, use all balances reported on the latest daily (7LF/9Q(x)) report. Continue to use balances reported via 7LF/9Q(x) to make daily repair and distribution decisions.

OPR: HQ AFMC/LGI

2. Correct DIREPs affecting 7LF/9Q(x) reporting (Appendix B).

OPR: HQ SSG/ILS

3. In the near future, develop a program that forces SBSS accounts to generate end-of-quarter asset balance reports (in the same form as daily reports) for all AF-managed items. When the process is operational, begin using the daily (7LF/9Q(x)) reporting for both worldwide requirements computation and daily repair and distribution decisions.

OPR: HQ SSG/ILS and HQ AFMC/LGI

4. Once DIREPs are corrected and end-of-quarter RAMP reporting is operational, eliminate the 7WS.

OPR: HQ SSG/ILS and HQ AFMC/LGI

5. In the long term, implement on-line RAMP reporting for Air Force managed items.

OPR: HQ SSG/ILS

Expected Benefits

Correcting known errors in the RAMP asset balance reporting process improves the AF's buy and repair requirement process. The result will be more accurate asset visibility, thereby aligning depot buy and repair actions more accurately with requirements. Also, more accurate asset reporting improves successful redistribution of retail assets.

Merging the two reporting processes into one reduces related software change requirements by 50%, as well as eliminates opportunities for the two sections of code to differ.

Improved asset balance reporting methods will result in buy and repair actions for appropriate items in the correct quantities and fewer file maintenance actions by item managers. For example, using the DOTM quantities (actually due-out quantities) reported by the 7WS in Mar 01 would have understated asset balances and, therefore, overestimated the required number of new purchases or repair actions by as much as 7,000 units. While such an overestimation of required spares could negatively affect the AF supply community's ability to support warfighters, workarounds in the AF requirements system are designed to limit the impact.

Item managers have the capability to file maintain data they believe to be more accurate in cases where RAMP asset balance reports are suspect. Indeed, many item managers may have corrected the incorrect DOTM quantities reported in Mar 01. Therefore, more accurate asset balance reporting results in fewer man-hours spent file maintaining correct asset balances.

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Chapter 1

Introduction

Background

The Standard Base Supply System (SBSS) reports asset balances daily using 7LF and 9Q(x) transactions generated by processing the Repairable Assembly Management Process (RAMP) report (also known as the D-28). These asset balance reports are used to make daily repair and distribution decisions.

A few years ago, the SBSS also began reporting asset balances and failure data on a quarterly basis. This quarterly reporting (7WS transaction) was designed to improve asset balance and failure data reporting accuracy by providing a direct interface to the Secondary Item Requirements System (D200A or SIRS).

The main function of D200A is to determine what items to buy or repair *at the depot*—that is the AF net (buy and repair) requirement. D200A determines the gross requirement and then applies existing assets to determine the net requirement. First, D200A subtracts all the serviceable assets from the gross requirement. That difference is called the “first over/short” position—it represents an item’s asset position before any base or depot repair. Next, the assets that *will be repaired at the base level* are subtracted, resulting in the second over/short position. The second short becomes the basis for the depot repair requirements. Finally, the remaining assets (carcasses), which will be repaired, are subtracted to obtain the net buy requirement. If incorrect retail account asset balances are used to compute worldwide requirements, the end result will be erroneous buy and repair requirements.

When AFMC/LGI personnel compare asset balances reported from the daily RAMP reports to asset balances reported by the quarterly report, the totals don’t match. The specific asset balances of concern are serviceable, unserviceable, due-in from maintenance (DIFM), due-out to maintenance (DOTM), and war reserve materiel (WRM).

Problem Statement

Which Standard Base Supply System (SBSS) asset inventory balance reporting method should be used to feed Air Force Materiel Commands’ (AFMC) Secondary Item Requirements System (SIRS or D200A) to determine buy and repair requirements for Air Force-managed (AF) items? The SBSS reports asset inventory balances to AFMC using two methods, a daily report and a quarterly report. The daily report (7LF/9Q(x)) is provided each day an item’s asset balance changes. It provides new reports and overwrites previously reported daily balances. The quarterly report (7WS) is generated at the end of each quarter and is a snapshot of SBSS asset balances for all AF-managed items. When total asset balances from both reporting methods are compared they yield different results.

Objectives

Determine why there are differences in asset balances reported via the two methods. Provide recommended changes to the daily RAMP reporting process and/or 7WS transactions to provide AFMC accurate asset balances to use for worldwide requirements computation of AF-managed items.

Scope

This analysis is limited to AF-managed items.

Assumptions

The test database we used perfectly emulates the SBSS. Results from test are sufficient to draw conclusions on accuracy of the D-28 process at AF bases worldwide.

Chapter 2

Research and Analysis

Overview

This chapter is organized into 6 sections: 1) Methodology, 2) Discussion with Subject Matter Experts, 3) Review of D-28 Program Logic, 4) Test Results of D-28 Reporting Process, 5) Additional Findings, and 6) Summary.

Methodology

Our first step was to discuss with subject matter experts at Headquarters Air Force Materiel Command, Supply Management Division (HQ AFMC/LGI) which asset balances were needed and how D200A uses the balances. Next, we reviewed the SBSS Recoverable Assembly Management Process (RAMP, also known as D-28) logic. Finally, personnel from Headquarters Standard Systems Group (SSG), in conjunction with personnel from Logistics Management Institute, conducted a test of the D-28 process.

Discussion with Subject Matter Experts

In our conversation with folks at HQ AFMC/LGI, we learned all asset balances are rolled into one of two quantities, serviceable or unserviceable, for requirements computation purposes. So, while a field-by-field comparison of 7WS to 7LF/9Q(x) reported balances yielded differences, when rolled up as simply serviceable or unserviceable balances, the differences could be offsetting.

Differences in the specific balance fields could negatively impact daily repair prioritization and distribution decisions, but would have less of an impact on quarterly requirements (buy and depot repair requirements) decisions. For example, a due-in for maintenance (DIFM) balance is an unserviceable if in the base repair pipeline. For requirements, it is considered a serviceable asset (will be repaired at the base), but it is not a serviceable asset for redistribution. Therefore, balance differences captured for daily decisions may not matter for quarterly requirements determinations. AFMC only uses the 7WS for quarterly requirements computations; it is not used for daily repair prioritization and distribution decisions. Thus, the 7WS does not have to be as specific as daily reports.

Members of the Requirements Interface Process Improvement Team provided us results from comparing daily asset reports to quarterly asset reports during March 2001. Table 1 contains these results.

Type Balance	Balances Reported via 7LF/9Q(x) (daily)	Balances Reported via 7WS (quarterly)	Delta
DIFM	16,503	14,989	1,514
DOTM	6,843	14,008	-7,165
Serviceable	217,071	218,926	-1,855
Unserviceable	1,527	3,547	-2,020
WRM	180,974	181,517	-543

Table 1. Mismatched Balances Reported by HQ AFMC/LGI.

Table 1 shows that in 4 of the 5 balance fields the 7WS reported balance was greater than the 7LF/9Q(x) reported balance. These differences could certainly affect the requirements computation.

The DOTM field contained the largest discrepancy (7,165) and is cause for concern. However, an error in how the 7WS reports DOTM balances was discovered in Jun 01. At that time, AFMC was notified to use the DOTM balance reported via 9QK instead of the 7WS DOTM balance. We further discuss the DOTM balance later in the report. Our next step was to determine the reason for differences. We reviewed the D-28 program logic to determine if both reporting methods use the same logic to accumulate quantities for reporting.

Review of D-28 Program Logic

Summary of Logic Review.

Documented 7WS program logic (*USAF Supply Manual*, AFMAN 23-110, Volume II, Part Two, Chapter 5, Attachment 5B-28) varies from 7LF/9Q(x) program logic, which results in different balances being reported. *In most cases, the number of asset balance discrepancies created by differing program logic is diminished since AFMC rolls the various balances up to either the serviceable or unserviceable balance category.* For example, asset balances the 7WS counts as *serviceable*, but the 7LF counts as *DIFM*, will in the end be rolled up into the serviceable balance quantity. We can see this by rolling up the DIFM, WRM, and serviceable quantities of each reporting method. Table 2 shows the results of rolling-up quantities previously displayed in Table 1.

Type Balance	Balances Reported via 7LF/9Q(x) (daily)	Balances Reported via 7WS (quarterly)	Delta
DIFM	16,503	14,989	1,514
Serviceable	217,071	218,926	-1,855
WRM	180,974	181,517	-543
TOTAL	414,548	415,532	884

Table 2. Rolled up Mismatched Balances Reported by HQ AFMC/LGI.

The 7LF/9Q(x) serviceable quantity of 414,548 is 884 less than the 7WS reported serviceable quantity of 415,532. This tracks with the belief that the 7WS correctly reports the sum of these fields and that some 7LF/9Q(x) images don't make it to D200A due to 7LF/9QK images not being produced for all applicable items or transmission/receipt errors.

The 7LF/9Q(x) reports are better than 7WS reports—because they report balances in a method compatible with making daily redistribution and repair decisions, as well as performing requirements computations. Plus, 9QKs correctly report DOTM balances. However, 7LF/9Q(x) transmission and receipt accuracy is not perfect.

We identified differences in the code used to report balances via 7WS as compared to the code used to report balances using 7LF/9Q(x). We start with the serviceable balance logic (Table 3).

QUARTERLY (7WS)	DAILY (7LF/9Q(x))
Item Record Serviceable Balance	Item Record Serviceable Balance
Supply Point Quantity On-Hand	Supply Point Quantity On-Hand
Mission Support Kit (MSK) Quantity On-Hand	MSK Quantity On-Hand
MSK Deployed Quantity	MSK Deployed Quantity
Project Detail On-Hand Quantity	Project Detail On-Hand Quantity
Firm DIFM quantity if DIFM status code is CEH, MWI, or TCG and type organization code is not equal to W or H	

Table 3. Serviceable Balance Logic.

The serviceable balance field on the 7LF image does not include the quantity of firm DIFMs that have a DIFM status code equal to CEH, MWI, or TCG and type organization code not equal to W (used to identify war reserve materiel (WRM)) or H (used to identify high priority mission support kit (HPMSK) materiel). Items assigned one of these DIFM status codes are in serviceable condition, but are not maintained in a normal supply warehouse location. These items are usually stored by maintenance until the applicable system's next maintenance event. These are serviceable assets, but aren't accessible (i.e., are not immediately redistributable).

One could argue that both reporting methods are correct. For the purpose of reporting overall SBSS serviceable balances to compute net buy and repair requirements, the 7WS includes serviceable but not accessible items as serviceable assets. However, for the purpose of day-to-day management and asset redistribution, the daily 9QK reports this group of items as inaccessible (inaccessible maintenance field (cc 74-76)). In other words, count this group of items as serviceable assets for requirements, but do not use their balances when making daily distribution decisions.

The result of reporting the applicable firm DIFM quantities as serviceable would be that the 7WS serviceable balance is greater than the 7LF serviceable balance. The data in Table 1 supports that point. As we show later, the 7LF reports all DIFM balances as DIFM, while the 7WS reports some DIFM balances as serviceable. So the totals offset.

Now let's review the DIFM balance logic (Table 4).

QUARTERLY (7WS)	DAILY (7LF)
Quantity of all firm DIFM details, excluding: 1) DIFM details with status codes CEH, MWI, or TCG. 2) DIFM details with type organization code W or H.	Quantity of all firm DIFM details.

Table 4. DIFM Balance Logic.

The DIFM balance reported on the 7WS excludes firm DIFM detail balances for details with DIFM status code CEH, MWI or TCG (used to identify serviceable items awaiting maintenance). As stated above, the balances for these DIFM details are included in the serviceable balance reported by the 7WS.

Firm DIFM quantities with type organization code W or H are also excluded from the 7WS DIFM balance. The 7WS adds DIFM quantities with an organization code of W to the WRM balance and DIFM quantities with an organization code of H are added to the HPMSK balance. The 7LF DIFM balance includes all firm DIFM details regardless of status code or organization code.

Again, both reporting methods can be viewed as correct. The 7WS reports the DIFM balance of items issued from WRM or HPMSK details as a WRM or HPMSK balance. The intent being to accurately reflect WRM and HPMSK balances, assuming a DIFM detail means a serviceable asset will eventually replenish the applicable WRM or HPMSK. However, the 7LF's intent is to provide a day-to-day report of balances available for redistribution.

The result of reporting the applicable firm DIFM quantities as serviceable or WRM/HPMSK balances on the 7WS is that **the 7LF DIFM balance should always be larger than the 7WS DIFM balance**. The results in Table 1 indicate that to be true; the 7LF reported DIFM balance was 1,514 units greater than the 7WS reported balance. Again, for requirements computational purposes, the DIFM and serviceable balance are combined, so the differences off-set.

Let's move on to the logic used to report unserviceable balances (Table 5).

QUARTERLY (7WS)	DAILY (7LF)
Sum of DIFM unserviceable detail record balances, excluding DIFM unserviceable detail records with condition code J or Q.	Sum of DIFM unserviceable detail record balances for items with a expendability, recoverability, and reparability cost (ERRC) code of XD or XF, excluding DIFM unserviceable detail records with condition code J or Q.

Table 5. Unserviceable Balance Logic.

Table 5 shows a difference in program logic used to report unserviceable balances. The 7WS reports unserviceable detail balances for all AF-managed ERRC XD(x), XF(x) or XB(x) items; but the 7LF reports unserviceable balances on only XD(x) and XF(x) items. This reporting

difference results in 7WS unserviceable balance totals being equal to or larger than 7LF unserviceable balance totals. The AFMC comparison results in Table 1 confirm this; 7WS unserviceable detail balances are 2,020 units larger than the 7LF unserviceable balance. Two additional reasons contribute to the large disparity: 1) AFMC not receiving the daily 7LF report due to data transmission/receipt errors; and, 2) 7LFs not being generated for all AF-managed items, which we describe later in this report.

Now let's review the logic used to report DOTM balances (Table 6).

QUARTERLY (7WS)	DAILY (9QK)
DOTM data is not included on the 7WS. A field named due-out balance contains the sum of all due-outs.	Sum of DIFM detail balances for DIFM details with DIFM status flag equal to 2 (credit DIFM).

Table 6. Due-Out to Maintenance Balance Logic.

The DOTM field had the largest discrepancy in reported balances. That is because the quarterly D-28 program logic determines the 7WS DOTM quantity differently than does the daily D-28 program logic (9QK). The 7WS program logic sums the quantity of all due-out detail records (205 detail) and reports the quantity as a due-out balance. Whereas, the 9QK sums the quantities of all DIFM detail records (203 detail) with DIFM status flag equal to 2 (credit DIFM). A credit DIFM detail identifies cases where maintenance has removed a part from an end item and turned it in before a replacement is received from base supply.

AFMC/LGI personnel informed us the credit DIFM balance is the quantity needed for the requirements computation. This credit DIFM balance identifies the number of units owed to maintenance because an unserviceable item has been turned-in to supply without supply providing maintenance a serviceable item to fill the hole on the end item. These holes on end items represent installed items, which are not included as assets in the requirements computation. Therefore, AFMC/LGI must subtract this quantity from the overall serviceable quantity. SSG/ILS personnel initiated DR CSD-00003042225 to change the due-out field on the 7WS to reflect only credit DIFM balances.

The 7WS due-out balance includes due-outs for which there is an asset still in the DIFM cycle and due-outs for items maintenance has turned in unserviceable (credit DIFM). There is no depot requirement until the base determines the disposition of the DIFM asset. If the base repairs the item, it will be used to fill the due-out. If the base sends the item to the depot for repair, it will become a credit DIFM and a requirement for the depot to fill. The credit DIFM balance is actually a subset of the 7WS due-out balance.

The non-credit DIFM due-out quantity is not used during requirements computations. It can only be assumed that when the 7WS code was written, the due-out to maintenance field was interpreted as meaning the actual balance of all due-outs.

Again, this tracks with the results in Table 2-1, where the 7WS reported DOTM quantity is 7,165 units larger than the 9QK reported DOTM quantity. With the 7WS reporting the due-out balance of each NSN, this large of a disparity is understandable. AFMC should not use the 7WS for DOTM balances.

Finally we review the logic used to report WRM balances. Table 7 provides details of the WRM balance logic.

QUARTERLY (7WS)	DAILY (9QK)
Special Spares on hand balance + deployed quantity + firm DIFM balance (for those DIFMs with type organization code = W)	Special Spares on hand balance + deployed quantity
Non-Airborne MRSP on hand balance + deployed quantity + firm DIFM balance (for those DIFMs with type organization code = W)	Non-Airborne MRSP on hand balance + deployed quantity.
Weapons Training Spares on hand balance + deployed quantity + firm DIFM balance if type organization code = W)	Weapons Training Spares on hand balance + deployed quantity.
Airborne MRSP on hand balance + deployed quantity + firm DIFM balance if type organization code = W)	Airborne MRSP on hand balance + deployed quantity.
WRM IRSP on hand balance + deployed quantity + firm DIFM balance if type organization code = W)	WRM IRSP on hand balance + deployed quantity.
WRM WCDO on hand balance + deployed quantity + firm DIFM balance (for those DIFMs with type organization code = W)	WRM WCDO on hand balance + deployed quantity

Table 7. WRM Balance Logic.

The 7WS WRM balance reported via 7WS includes the DIFM balance of firm DIFM details with a type organization code of W, but the 9QK does not. The results are thus the reverse of the results described earlier in the DIFM balance area.

Results in Table 1 confirm the end result of differing program logic. The 7WS WRM balance is 543 units larger than the 9QK reported WRM balance. By including firm DIFM balances for items issued from various WRM details, the 7WS reported balance will always be greater than the 9QK reported balance.

Test Results of D-28 Reporting Process

Our last step was to test the reporting methods by comparing the 7WS to the 7LF/9Q(x) reported quantities for an actual sample of items. Our intent here was to spot-check the reporting methods and identify reporting inconsistencies. The results confirmed there are differences between asset balances reported by RAMP and 7WS transactions. These differences have been identified and corrective actions have been planned.

Data used in the test was obtained from Charleston Air Force Base, South Carolina, as of June 2001. Personnel from HQ SSG/ILS and Logistics Management Institute obtained a randomly selected test group of 61 NSNs, and in a controlled environment processed transactions to generate balance changes. As stated earlier, when an NSN's balance changes, the NSN is flagged so that the new balance is reported to AFMC when the end-of-day D-28 is processed.

Next, we processed inquiries on the NSNs to determine ending balances. Then, we processed the quarterly D-28 to generate 7WS reports. Processing the quarterly D-28 produced 7WS images for every NSN and 7LF/9Q(X) images for NSNs with transactions that changed item record balances. Asset balances reported on the quarterly 7WS transactions were compared to asset balances reported via daily 7LF/9Q(x) transactions. Specific balances compared were: serviceable, due-in from maintenance (DIFM), war reserve materiel (WRM), unserviceable, and suspended in stock. The results are discussed in further detail below.

Fifty of the sixty-one NSNs reported a positive balance via the 7WS in at least one of the five target balance fields. Table 8 displays the number of NSNs with positive balances.

Type Balance	Number of NSNs
Serviceable	40
DIFM	16
WRM	33
Unserviceable	0
Suspended in Stock	3
Total	92

Table 8. Number of NSNs with Positive Quantity.

Table 8 includes 5 balance fields. We excluded DOTM balances because the reason for the large mismatch is clearly related to the due-out quantity being reported on the 7WS and the DOTM quantity being reported on the 9QK.

Several NSNs had positive balances in more than one field. So, the sum of NSNs in table 7 (92) will not equal the total number of NSNs in the test (61).

None of the NSNs had a positive unserviceable balance to report. Since the code used to report unserviceable balances via 7LF and 7WS images matched, we were not concerned with having unserviceable balances to compare. Overall, our sample provided all the fields we needed to test.

We identified the number of balance mismatches between the 7LF/9Q(x) and the 7WS. The results are listed in Table 9.

Daily Image	Type Balance	Match 7WS	Don't Match 7WS	Total
7LF	Serviceable	38	2	40
7LF	DIFM	11	5	16
9QK/L	WRM	29	4	33
7LF	Suspended in Stock	2	1	3
TOTAL		80	12	92

Table 9. Comparison Results.

Table 9 shows for 13% (12 of the 92) of the cases, asset balances reported via 7WS differed from asset balances reported by 7LF/9Q(x). The 12 imbalances were applicable to 11% (7/61) of the NSNs.

In 8 out of 12 cases the differences were created by *D-28 program logic differences*. The following paragraphs describe these imbalances in further detail.

In 4 cases (2 NSNs) there were imbalances in the DIFM and WRM balance fields. The 7WS included the DIFM in the WRM field while the daily report included the balance in the DIFM field.

There were 2 cases where the 7WS reported DIFM balance was larger, 1 case of the 7WS unserviceable balance being larger, and 1 case of the 7WS reported suspended-in-stock balance being larger. In all 4 cases (3 NSNs) the ERRC of the stock number was XB3. The program logic difference causing the imbalances is that the 7WS reports DIFM, unserviceable, suspended-in-stock, and special purpose recoverable asset management (SPRAM) balances for XB3 items, but the 7LF doesn't. HQ SSG/ILS should change 7LF program logic so that these balances are reported for XB3 items, just like the 7WS.

In the 4 cases (involving 2 NSNs) an imbalance was created because a *7LF or 9QK* was not produced. The D-28 program does not create a 7LF/9QK for all AF-managed items. It appears that the releveing (LVL) transaction blanks the budget code in some cases when a type transaction phrase code 4G is written to the transaction history file. The D-28 uses the budget code to determine if an item is AF-managed. Items with a blank budget code do not meet budget code edits and, therefore, 7LF/9Q(x) are not generated when the D-28 report is processed. *HQ SSG/ILS generated DR CSD-00003034521 to correct this discrepancy.*

Additional Findings

7WS images are produced for locally assigned NSNs (L and P serialized) as well as equipment items. HQ SSG/ILS should modify the RAMP selection criteria so these items will not report via 7WS.

Summary

There are four reasons why asset balances reported via the daily RAMP process would differ from asset balances reported on the quarterly 7WS transaction. First, the RAMP program (D-28) that generates daily and quarterly asset balance reports uses *different program logic* to accumulate reportable quantities. Second, the *daily RAMP reports are not created for all AF-managed items*. Third, the 7WS *reports* positive balances for *L or P serialized NSNs and equipment items*. And fourth, *not all daily RAMP transmissions successfully get to D035A*.

Our test of the RAMP reporting process showed 33% (4/12) of asset balance differences could be traced to the daily RAMP report not being created. The remaining 67% (8/12) of the differences were attributable to differing program logic in the RAMP program (D-28) used to populate the 7WS and 7LF/9Q(x) balance fields.

AF-managed item balances reported on the 7WS, except for the DOTM balance, *are accurate and can be used for worldwide requirements computation*. *7LF/9Q(x) reports exclude a small number of items* and are subject to *transmission/receipt errors*. *Therefore, for the time being, we propose using balances from both methods to perform requirements computation*. AFMC

should use balances (except the due-out balance) reported via 7WS for worldwide requirements computation. The DOTM balance can be obtained from the 9QK images. In instances when a 7WS is not received the 7LF/9Q(x) reported balances should be used. By using a combination of both asset balance reporting methods, AFMC can obtain an accurate record of serviceable and unserviceable AF-managed assets.

We recommend balances reported on daily 7LF/9Q(x) images continue to be used to prioritize repair and make distribution/redistribution decisions. Factors dictating repair and distribution decisions are fluid. Therefore, balances used to make these decisions must be based on the most current asset balance picture and the most accurate view for those decisions.

However, there should be one accurate and consistent source of data for AFMC requirements, repair, and distribution decisions. The AF should not budget, compute requirements, and perform repair capacity planning with data that is not consistent with the data used to *execute* repair, buy, and distribution decisions. Also, the AF should not maintain multiple, redundant levels of code to report asset data. Currently a change in business rules to report assets requires multiple code changes.

Therefore, in the near future (6 months), we recommend AFMC start using asset balances reported by 7LF/9Q(x) for performing requirements computations for AF-managed items. There are two problems with using the 7LF/9Q(x) right now. First, there are difficulty reports (DIREPs) (logic errors) that SSG must correct. Secondly, RAMP suffers from data transmission/receipt errors. Before AFMC uses 7LF/9Q(x) exclusively, SSG must correct all outstanding DIREPS and develop a SURGE program for all bases to generate an end of quarter 7LF/9Q(x) report on AF-managed NSNs. Generating end-of-quarter 7LF/9Q(x) reports to AFMC will provide a more reliable means for AFMC to ensure the most current asset balances are used for requirements computation. Using the 7LF/9Q(x) reported balances will allow day-to-day repair and distribution decisions to be based on the same data used to compute requirements computations.

End-of-quarter 7LF/9Q(x) reports will be susceptible to data transmission/receipt errors. One way to eliminate data loss due to transmission/receipt errors is to implement on-line RAMP reporting. HQ SSG/ILS is working this initiative.

The purpose of a 7WS is to report failure and asset balance data for AF-managed items. In Dec 01 the AF stopped using failure data reported on 7WS images and began using failure data reported by a new transaction, the 7SC. This reduces the need for a 7WS. Therefore, when 7LF/9Q(x) identified errors (DIREPs) are corrected and SSG completes the SURGE required to create end of quarter RAMP transactions for all items, we recommend the AF eliminate the 7WS and use 7LF/9Q(x) reports as the exclusive source for AF-managed asset balances.

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Chapter 3

Conclusions and Recommendations

Conclusions

1. Program logic that produces 7WS and 7LF/9Q(x) images is not consistent when categorizing and reporting SBSS asset balances.
 - a) DOTM balances are not reported in the 7WS.
 - b) 7WS program logic excludes certain firm due-in from maintenance (DIFM) balances from the DIFM quantity reported. These excluded DIFM balances are reported as either serviceable assets or war reserve materiel (WRM) assets. Whereas, the 7LF program logic reports all firm DIFM balances in the DIFM balance field. This does not present a problem unless specific balances reported via the two methods are compared.
 - c) 7LF logic does not report DIFM, unserviceable, suspended-in-stock, or special purpose recoverable asset management (SPRAM) balances for XB3 items.
2. Daily reports (7LF/9Q(x)) are not produced for all AF-managed items.
3. Daily RAMP (7LF/9Q(x)) transactions suffer from data transmission/receipt problems.

Recommendations

1. For now, continue to use balances (except due-out balance) reported via 7WS for worldwide requirements computation and use the DOTM balance from 9QK images. When a quarterly report (7WS) is not received, use all balances reported on the latest daily (7LF/9Q(x)) report. Continue to use balances reported via 7LF/9Q(x) to make daily repair and distribution decisions.

OPR: HQ AFMC/LGI

2. Correct DIREPs affecting 7LF/9Q(x) reporting (Appendix B).

OPR: HQ SSG/ILS

3. In the near future, develop a program that forces SBSS accounts to generate end-of-quarter asset balance reports (in the same form as daily reports) for all AF-managed items. When the process is operational, begin using the daily (7LF/9Q(x)) reporting for both worldwide requirements computation and daily repair and distribution decisions.

OPR: HQ SSG/ILS and HQ AFMC/LGI

4. Once DIREPs are corrected and end-of-quarter RAMP reporting is operational, eliminate the 7WS.

OPR: HQ SSG/ILS and HQ AFMC/LGI

5. In the long term, implement on-line RAMP reporting for Air Force managed items.

OPR: HQ SSG/ILS

Expected Benefits

Correcting known errors in the RAMP asset balance reporting process improves the AF's buy and repair requirement process. The result will be more accurate asset visibility, thereby aligning depot buy and repair actions more accurately with requirements. Also, more accurate asset reporting improves successful redistribution of retail assets.

Merging the two reporting processes into one reduces related software change requirements by 50%, as well as eliminates opportunities for the two sections of code to differ.

Improved asset balance reporting methods will result in buy and repair actions for appropriate items in the correct quantities and fewer file maintenance actions by item managers. For example, using the DOTM quantities (actually due-out quantities) reported by the 7WS in Mar 01 would have understated asset balances and, therefore, overestimated the required number of new purchases or repair actions by as much as 7,000 units. While such an overestimation of required spares could negatively affect the AF supply community's ability to support warfighters, workarounds in the AF requirements system are designed to limit the impact.

Item managers have the capability to file maintain data they believe to be more accurate in cases where RAMP asset balance reports are suspect. Indeed, many item managers may have corrected the incorrect DOTM quantities reported in Mar 01. Therefore, more accurate asset balance reporting results in fewer man-hours spent file maintaining correct asset balances.

APPENDIX A

Distribution

HQ USAF/IL (2)
HQ USAF/IL-I
HQ USAF/ILG
HQ USAF/ILP
HQ USAF/ILM
SAF/AQC
HQ AFMC/LG
HQ AFMC/LGI
HQ ACC/LG
HQ AMC/LG
HQ AFRC/LG
HQ USAFE/LG
HQ PACAF/LG
HQ AETC/LG
HQ AFSOC/LG
HQ AFSPC/LG
ANG/LG

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APPENDIX B
List of Open DIREPs

NUMBER	TITLE
3120350	D-28 not reporting all transactions for all system designators
3034521	RAMP asset data accuracy
3110499	D-28/NGV868 creating 9QN without type account code
3033086	NGV868 creating invalid 7WS images when end-of-quarter option processed.
3042225	NGV868 7WS due-out should be DOTM.

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